

## MEMORANDUM

TO: Board of Selectmen

FROM: Kerry Speidel, Chief Administrative & Finance Officer  
Jack Rodriquez, Public Works Director

DATE: August 18, 2009

SUBJECT: Pavement Management System

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### **Background on Roadway Infrastructure**

Over the years, the Town has made a significant financial investment in its infrastructure. This infrastructure includes school and municipal buildings and the sewer and water systems. Often overlooked but no less important, the roadway network is part of the Town's overall infrastructure. Like any piece of the infrastructure, the roadway network must be maintained in order to protect the public's investment. Deferring maintenance on the road system will only increase costs over time as the condition of the asset further deteriorates.

The Town maintains approximately 100 miles of roads. Current road construction estimates range from \$600,000 to \$1,000,000 per road mile. With 100 miles of road, this asset has a value of between \$60 million and \$100 million. Unfortunately, the Town's financial resources for maintenance are limited to c.90 State assistance and locally budgeted funds. Chapter 90 provides about \$300,000 per year and the FY10 budget commits \$70,000 for road improvements.

Like many communities, the Town has not kept pace with the maintenance of its roads. Competing interests like public education, public safety, and general government operations often take priority over roadway improvements. Roadway improvements prioritized according to the squeaky wheel principle have been the norm, but is not a prudent approach to maintaining such a valuable asset.

Furthermore, continued deferred maintenance will cost the Town dearly in the future. The cost of bituminous concrete (asphalt) has increased approximately 2 ½ times over the past 10 years. Although some costs may be slightly lower due to the current economic slump, there is no reason to believe paving costs will decline in the future.

The Board of Selectmen clearly understands the need to protect the roadway infrastructure and invest in its maintenance. For this reason the Board instructed staff to prepare a pavement management plan. As the Board rightly acknowledges, this investment needs to be done as efficiently and cost effectively as possible and it must be done in a systematic fashion. A Pavement Management System is the best way to facilitate this.

### **Pavement Management System**

A Pavement Management System provides an objective way of programming roadway improvements with the goal of maximizing available resources and extending the life of the pavement system. The system will establish a baseline condition of roadways which will be used to establish a list of prioritized improvement recommendations. Roadway segments will be prioritized according to a formula that includes the following:

- Pavement Defect Value
- Unit cost of recommended improvements
- Average Daily Traffic (ADT) on the roadway segment
- Functional class of the roadway segment (main road, secondary main road, local road)
- Safety

### **Data Collection**

The baseline analysis of roadway segments is under way and is being performed by Town staff. The data collection on each roadway segment records information that is entered into a formula. This formula provides a numerical Pavement Deficit Value which leads to an Overall Priority Condition. The Overall Priority Condition is the basis on which annual improvements will be programmed.

### **Improvement Methods**

Once Overall Priority Conditions for each roadway segment are completed specific improvement methods will be identified. The annual improvement plan will be designed taking into consideration available funds and the roadway network as a whole. The improvement program will address immediate needs and long term maintenance of the roadway network. Immediate needs are those in which roadway segments are at or near failure. Long term maintenance needs are those that slow or stop the deterioration of the roadway segment, thereby extending the life of the segment.

Improvements will be tailored to the specific condition of the roadway segment. Improvements may include crack filling, crack sealing, patching, replacing broken berms, shoulder work, infrared repairs, trench repairs, milling, overlay, and total or partial reclamation or reconstruction. Other roadway features will also be evaluated and factored into improvement costs. These may include curbing and berms, utility features, manholes, and catch basins.

### **Preventive Maintenance**

In addition to addressing roads in poor or failing condition, an emphasis will be placed on preventive maintenance. It is important to address pavement problems as they develop and not allow them to reach the point of pavement failure. For this reason, minor repair techniques will be utilized to extend the life of roadways. For example, crack sealing is a fairly inexpensive way to prevent water from infiltrating into pavement, which can quickly lead to pavement failure.

### **Reconstruction**

For roadways that are beyond repair, reconstruction will be necessary. In general, reconstruction should only be considered for main roads. This is because of the volume of traffic these types of roadways carry. It is generally not cost effective to reconstruct secondary and local roadways that do not carry heavy volumes. These roads can usually be sufficiently repaired by less costly means.

#### Annual Improvement Program

Every year prior to the commencement of the construction season a list of roadway improvements will be published. This Annual Improvement Program will be provided to the Board of Selectmen and made available to the public on the Town's website. The program will detail the roadway segments and the corresponding improvements for each segment. The decisions will be directly tied to the Pavement Management Program. Due to uncertain funding and expenses it is difficult to develop a list that projects when each roadway segment will be addressed. Multiyear improvement schedules will be released to the extent that they can be accurately projected.

I hope this information is helpful to the Board and the public. I will continue to keep the Board informed as the Pavement Management System is developed and as other information becomes available.

FY2010 Annual Improvement Program .